

WHAT IS CLAIMED IS:

- JW/AD*

1. NOx removal apparatus comprising:  
a support made of a mixture including manganese dioxide and copper oxide; and  
an alkali material combined with the support;  
the support and the alkali material being combined for NOx removal.
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2. The apparatus of claim 1, wherein the support includes at least about sixty weight percent manganese dioxide and at least about ten weight percent copper oxide.
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3. The apparatus of claim 1, wherein the alkali material is potassium carbonate, the potassium carbonate being between about 3 weight percent and 40 weight percent of the combined support and alkali material.
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4. The apparatus of claim 1, wherein the alkali material is potassium carbonate, the potassium carbonate being between about 3 weight percent and 12 weight percent of the combined support and alkali material.
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5. The apparatus of claim 1, wherein the alkali material is potassium carbonate, the potassium carbonate being between about 20 weight percent and 40 weight percent of the combined support and alkali material.
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6. The apparatus of claim 1, wherein the support particles have an internal surface area of at least 150 meters<sup>2</sup>/gram.
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7. The apparatus of claim 1, wherein the support is impregnated with the alkali material.

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8. The apparatus of claim 1, wherein a first group of particles is made of the support, and wherein the alkali material is on a second group of particles, and wherein the first and second groups of particles are mixed together.

9. The apparatus of claim 1, wherein a first vessel contains the support, wherein a second vessel contains the alkali material, and wherein air is flowed over the support and then the alkali material during NOx removal.

10. The apparatus of claim 1, further comprising an enclosure for providing a gas to the support and alkali material, the gas having a temperature below 100°C during NOx removal.

11. An adsorbent for removing NOx from a gas, the adsorbent comprising:  
support particles made of a mixture including manganese dioxide and copper oxide; and  
an alkali material;  
the support particles being impregnated with the alkali material.

12. The adsorbent of claim 11, wherein the support includes at least about sixty weight percent manganese oxide and at least about ten weight percent copper oxide.

13. The adsorbent of claim 11, wherein the mixture further includes chromium oxide.

14. The adsorbent of claim 11, wherein the alkali material is potassium carbonate, the potassium carbonate being between about 3 weight percent and 40 weight percent of the adsorbent.

15. The adsorbent of claim 11, wherein the alkali material is potassium carbonate, the potassium carbonate being between about 3 weight percent and 12 weight percent of the adsorbent.

16. The adsorbent of claim 11, wherein the alkali material is potassium carbonate, the potassium carbonate being between about 20 weight percent and 40 weight percent of the adsorbent.

17. The adsorbent of claim 11, wherein the support particles have an internal surface area of at least 150 meters<sup>2</sup>/gram.

18. A method of removing NOx from a gas having a temperature below 100°C, the method comprising the steps of:

exposing the gas to porous particles made of a mixture including manganese dioxide and copper oxide; and

exposing the gas to an alkali material.

19. The method of claim 18, wherein the gas is exposed to the alkali material in a common vessel.

20. The method of claim 18, wherein the gas is exposed first to the mixture and then to the alkali material, the mixture and the alkali material being contained in separate vessels.